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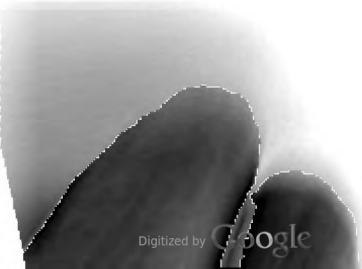
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sq. dm.	square decimeter
tech.	technical
tinc.	tincture
tr.	tincture
Tw.	Twaddell
U.S.P.	United States Pharmacopeia
v.	volt
visc.	viscosity
vol.	volume
wt.	weight

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Maraschino Flavor	1 oz.
Orange Color	To suit

Hot Chocolate Powder

Cocoa	120.0
Sugar	240.0
Powdered Milk	120.0
Vanillin	0.5
Cumarin	0.1
Powdered Cinnamon	0.3

Mix intimately. To use, mix about 2 teaspoonfuls per cup of hot water.

FROZEN CITRUS CONCENTRATES

Clean the fruit, extract and strain the juice, and immediately evaporate under vacuum (10 to 20 mm.) to 50 to 60% solids (50 to 60° Brix). Add back fresh juice to restore volatiles and adjust to 42° Brix. Fill in plain tin cans, freeze immediately. Store at 0 to 10°F. The consumer dilutes the concentrate with 3 parts water to give straight single-strength juice.

Orange-Grapefruit Blend

Use 60% by weight or more of orange concentrate, the remainder grapefruit.

Orange-Tangerine

Early-season oranges, 75%, and tangerine, 25%, make a blend better than either one alone.

Lime-Tang

This has an exceptionally fine flavor. Use 80 to 90% tangerine concentrate, the remainder being lime-juice concentrate.

Florida-Citrus Soft-Beverage Base
(Beisel-McDuff formula)

Orange Concentrate (60° Brix)	34.0 oz.
Grapefruit Concentrate (60° Brix)	34.0 oz.
Lime Concentrate (50° Brix)	11.0 oz.
Sugar	784.0 g.
Citric Acid	68.0 g.
Sodium Chloride	32.0 g.
Oil Emulsion *	1.2 cc.
Water	29.0 oz.

Use 1 gal. Beverage Base and 1 gal. 32° Bé. sugar syrup. Pour 1 oz. into a 6 oz. bottle.

Clearing Alcoholic Beverages

Dried Albumen	400 g.
Lactose	400 g.
Potato Starch	200 g.

To each quart of wine, liqueur, alcoholic extracts, etc., add 4 to 5 g. of this powder mixture and let stand in a warm place for 6 to 8 days.

Smooth Liquor

To 1 gal. liquor, add 1 to 2 oz. glycerin, C.P. This will give a smooth taste to rye, gin, and other liquors.

Prune Cordial

Boil ½ lb. dried prunes 5 minutes, drain off water, and cool the prunes. Next, fill a jar with them and cover with a good grade of whiskey (80 to 100 proof). Add 2 teaspoonfuls sugar, and let set a week or so. Drain off the cordial, crush the prunes, filter, and use.

* The oil has the following composition: 38 parts five-fold Floridian orange oil, 19 parts five-fold Floridian tangerine oil, and 1 part five-fold lime oil. The emulsion is made by mixing 20 cc. of the oil mixture with 50 g. dextrose and 5 g. gum tragacanth in a high-speed mixer with enough water to make about 500 cc. emulsion.

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Chlordane Formulations and Dilutions

Insect	Crops	40 to 47% Emulsifiable Concentrate	50% Wettable Powder	5% Dust	Recommendations
Leaf Miners: Serpentine Beet Pea Leaf Aster Leaf	Peas, Beans Tomatoes Potatoes Beets Spinach, Etc.	1 qt. to 100 gal. water—apply 75 to 125 gal. per acre.	2 lb. to 100 gal. water—apply 75 to 125 gal. per acre.	20 to 30 lb. per acre	Use as soon as miners appear. One application may be all that is required.
Carrot Rust Fly Carrot Weevil	Carrots	1 qt. to 100 gal. water—apply 75 to 125 gal. per acre.	2 lb. to 100 gal. water—apply 75 to 125 gal. per acre.	20 to 30 lb. per acre	Make first application when carrot rust flies first appear followed by 2 or 3 applications 10 days apart. Will control carrot weevil.
Onion Maggot Cabbage Maggot	Onions Cabbages Radishes Turnips Cauliflower	1 qt. to 100 gal. water apply to soil or pour ½ cup at base of plant.	2 to 4 lb. per 100 gal. water applied to soil surface at rate of 100 to 150 gal. per acre or at base of plant ½ cup per plant.	Apply to soil surface 30 to 60 lb. per acre	On onions apply when plants are 1 in. out of ground and repeat once or twice at 10 day intervals. On cabbage, cauliflower, radishes and turnips apply as soon as plants are set in field and repeat 2 or 3 times at 10-day intervals.
Seed Corn Maggot	Beans, Onions Peas, Corn, Etc.	1 qt. to 100 gal. water applied to soil surface at time of planting. 100 gal. per acre.	2 lb. per 100 gal. water applied to soil surface at time of planting 100 gal. per acre.	20 to 30 lb. per acre at time of planting	Also may be used as seed coating to give 1 lb. per acre according to rate of seeding.
Thrips	Onions, Beans Celery, Cabbage, and other crops	1 qt. to 100 gal. water—apply 100 to 150 gal. per acre.	2 lb. to 100 gal. water—apply 100 to 150 gal. per acre.	20 to 40 lb. per acre	Make first application as soon as thrips appear and 2 or 3 subsequent applications at 10-day intervals.
Aphids	All Crops	1 to 2 qt. to 100 gal. water—apply 150 gal. per acre.	2 to 4 lb. per 100 gal. water—apply 150 gal. per acre.	40 lb. per acre	Thorough application should be made with equipment capable of applying insecticide directly to infested parts of the plants.
Squash Bug Striped Cucumber Beetle 12-Spotted Cuke Beetle	Cucumbers Melons Squash Pumpkins		2 lb. to 100 gal. water—apply 100 gal. per acre.	20 to 40 lb. per acre	Make first application in seedling stage and subsequent applications as insects appear.

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Gold-Dye-Receptive Brass Lacquer

Nitrocellulose (RS ½ second)	20	(Dry Basis)
Teglac Z-152	60	
Rezyl 99	16	(Dry Basis)
Tricresyl Phosphate	10¾	
Dibutyl Phosphate	5½	

Dissolve in lacquer solvent to give 18% solids for spraying.

Automotive Surfacer Lacquer

Red Iron Oxide	39.0
Nitrocellulose (RS ½ second; Dry)	7.0
Aroplaz 905-T-50	5.0
Dibutyl Phthalate	9.0
Thinner (Consisting of: 55% Hydrocarbon; 30% Esters; 15% Alcohol)	43.5

Sanding-Sealer Furniture Lacquer

Nitrocellulose, 20% Solution (RS ½ second)	20
Arochem 520 (50% in Toluol)	16
Lacquer Thinner	12

Clear, Check-Resistant Furniture Lacquer

Nitrocellulose, 35% Solution (½ second)	27.0
Arochem 520 (50% in Toluol)	7.0
Aroplaz 905-T-50	10.6
Dibutyl Phthalate	4.4
Butyl Acetate	28.5
Ethyl Acetate	5.8
Butyl Alcohol	6.8
Solox	3.1
Toluol	6.8

Clear Furniture Lacquer

Ethyl Cellulose G-14	9.8
Super Beckacite 1001	9.8
Raw Castor Oil	1.3
Diamyl Phthalate	0.8
Toluene	16.3
Alcohol	62.0

High-Solids Furniture-Lacquer Base

RS Nitrocellulose (30–35 cps.)	1.0
Glyptal 2477	0.6
Lewisol 33	0.4
Dioctyl Phthalate	0.5

Wood Lacquer

Formula No. 1

(a)	Nitrocellulose (½ second Wet)	14.75
	Dibutyl Phthalate	5.00
	Ethyl Acetate	25.00
	n-Butanol	2.50
	Denatured Ethyl Alcohol	21.00
(b)	Ester Gum	14.75
	Toluol	14.75
(c)	*Neville Resin R-16*	14.75
	Toluol	14.75
(d)	Ethyl Acetate	27.00
	n-Butyl Acetate	16.00
	Pine Oil	5.00

Prepare solutions of (a), (b) and (c), each separately. Stir solution (b) into (a), then add solution (c). When uniform on stirring, add additional solvents listed under (d).

No. 2

(Cheap, high-gloss)

Beckacite 1110	90
Nitrocellulose	10
Lacquer Diluent	55

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fine uniform wrinkle which is hard and mar resistant.

No. 2

Carbon Black	18
Magnesium Silicate	89
P-271 Wrintex	642
Toluol	116
6% Cobalt Drier	27

No. 3

Amberol F 7	32
China-Wood Oil	32
2% Cobalt Linoleate	2
Mineral Spirits	32
Carbon Black	2

Heat the China-wood oil to 370°F., hold 1 hour at this temperature, remove from fire, then add the *Amberol* in small portions, stir well, reduce with the mineral spirits, and add the drier. Then grind with the carbon black on a roller mill. This varnish crystallizes when varnished metal parts are force-dried in gas oven at 120°F.

Blue Wrinkle Enamel

Iron Blue C.P.	35.50
Lampblack	11.30
Rutile Titanium Dioxide	85.00
Precipitated Red Iron Oxide, Medium	5.66
Micronized Talc	71.00
P-271 Beckosol	566.00
Xylol	179.50
6% Cobalt Drier	9.20

Olive-Green Wrinkle Enamel

Rutile Titanium Dioxide	17.0
Lampblack	12.5
Chrome Yellow, Medium	10.0
Yellow Iron Oxide	50.0
Precipitated Whiting	100.0
No. 1 Beckosol	150.0
China-Wood Oil	40.0
No. 1326 Beckosol	270.0
6% Manganese Drier	12.0

Bake 1 hour at 250°F. After 15 minutes, air-dry.

Clear Wrinkle Varnish

No. 1123 Beckacite	400
Oiticica Oil	630
Lead Acetate	16

Heat the resin and oil to 480°F. in approximately 30 minutes. Add the lead acetate slowly and, after it is taken up, raise the temperature to 500°F.

Silk-Screen Enamels

Formula No. 1

(Green)

Chrome Green Medium	120
China Clay	650
Talc	100
P-296 Beckosol	320
66% Calcium Linoleate	30
Mineral Spirits	65
High-Boiling Mineral Spirits	55
6% Cobalt Drier	2
6% Manganese Drier	8
24% Lead Drier	12

No. 2

(Red)

Toluidine Toner Medium	69.00
China Clay	544.00
Talc	86.50
P-296 Beckosol	277.00
66% Calcium Linoleate	26.00
Mineral Spirits	86.50
High-Boiling Mineral Spirits	91.00
6% Cobalt Drier	1.75
6% Manganese Drier	7.00
24% Lead Drier	10.50

No. 3

(Yellow)

Chrome Yellow, Medium	253.00

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ready for painting. Care should be used in the selection of a paint as most paints are soluble in pine gum. The paint must be insoluble in turpentine or gum. If the gum farmer should wish to mix his own paint, the following formula is suggested.

Paint for Turpentine Cups

Wood Alcohol (or Denatured Alcohol)	10 gal.
Dry Flake Orange Shellac	24 lb.
Venice Turpentine *	28 oz.
Dry Red Lead	24 lb.

These quantities should give about 12 gal. paint which should paint the inside of 5000 cups.

Dissolve the shellac in the alcohol. This is an operation that takes some time. It is best done by putting the shellac in a can and stirring as the alcohol is added. After all of the alcohol has been added, cover the can and allow the mixture to stand undisturbed for several hours, preferably overnight. After the shellac has dissolved in the alcohol, strain the liquid through cheesecloth to remove any insoluble matter.

Warm the Venice turpentine in the container, in a hot water bath until it flows freely and pour it into the shellac solution. When ready to use and not before, mix in the dry lead and stir thoroughly to break up all the lumps. If the paint is too stiff, add more alcohol. This stirring and alcohol addition should be done with the can in hot water. *Keep fires away from the liquid for it is inflammable.* Keep the paint container covered except when using it.

Since the mixture of shellac solution and red lead, even when properly thinned, hardens rapidly, it is recommended to make up only about one-half of the finished paint at a time and to use it immediately.

Usually only the cups are painted. The gutters and aprons are only cleaned. The painting is done by hand.

* The Venice turpentine may be omitted if not convenient.

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Secret-Document Paper
British Patent 609,743

Methyl Cellulose	6.5
Calcium Carbonate	78.0
Water	15.5

Coat the paper on the printing or writing side with this mixture. Then dry and coat lightly on the other side with

Methyl Cellulose	2.0
Tartaric Acid	34.0
Water	64.0

Dry the finished sheet. This paper is printed in the usual way. Immersion in water renders the printing or writing illegible.

Facsimile-Recording Paper
(Dry conductive)
U. S. Patent 2,471,607

Lead Formate	1.875
Titanium Dioxide	5.000
Zinc Dust	0.310
Polyvinyl Acetate Solution	10.000
Ethyl Acetate	20.000

Nonirritating Cigarette Paper
U. S. Patent 2,460,285

During the paper forming process, less than 3% solubilized chlorophyll is added. This agent oxidizes the irritating vapors produced during smoking.

Improved Strength and Dielectric Asbestos Paper
U. S. Patent 2,460,734

Asbestos	80–70
Clay	20–30

After forming into sheets, these are impregnated with an aqueous solution of alpha stannic oxide and heated at 60 to 100°C. until dry.

Tub Sizing for Paper
British Patent 578,541

Gelatin	50
Urea	25
Water	800

Warm and mix until dissolved. Just before use add alum in 10% aqueous solution.

Stabilizing Dry Rosin
U. S. Patent 2,471,714

Add 0.1 to 1.0% phenothiazine based on the weight of the rosin.

Antifoam for Paper Mills

Lecithin	12
Water	88

Defoamer for Paper Feed Stock
U. S. Patent 2,423,215

Kerosene	28 gal.
Boiled Linseed Oil	15 gal.
Mahogany Soap	48 lb.
Water	100 gal.

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Glycine	12 g.
Anhydrous Sodium Sulfite	90 g.
Water	To make 1 l.

Normal exposure time is 15 to 20 minutes.

No. 5
U. S. Patent 2,466,423

Monomethyl-p-Amino-phenol Sulfate	5
Anhydrous Sodium Sulfite	100
Ethylenediamine Sulfate	12
Sodium Metaborate	4
Potassium Bromide	¼
Sodium Chloride	20
Water	To make 1,000

Pyrocatechin Developer

Stock Solutions

(a) Pyrocatechin (Catechol)	15 g.
Distilled Water	15 dr.

This solution should be kept in a dark bottle in a dark place. In 2 to 3 weeks it will slowly turn brown, but need not be discarded until it turns turbid.

(b) Dry Sodium Carbonate	½ oz.
Water	5½ oz.

For use, add 1 dr. of solution (a) to 2 oz. tap water, and ½ oz. of solution (b) to 1½ oz. tap water.

The two solutions turn green when mixed and, since the working solution oxidizes rapidly, only one 4 x 5 film may be developed in each working solution. Mix the two solutions just before use, develop until the shadows are visible (4½ to 7 minutes), fix, and wash. Verichrome develops in 6 to 8 minutes, Super XX in 7 to 10 minutes.

For soft prints, for such subjects as women, children, certain landscapes, etc., the print formula for black tones is:

Pyrocatechin	10 gr.
Dry Sodium Sulfite	40 gr.
Caustic Soda (10% Solution)	2 dr.
Potassium Bromide (10% Solution)	20 drops
Water	10 oz.

If warm tones are wanted, use the same formula but leave out the sulfite. With the sulfite omitted, the developer oxidizes quickly, therefore, only two prints should be processed in any one bath and the latter then discarded. Stains are the penalty if you do not.

Toning Photographic Prints Red

(a) Water	½	oz.
10% Solution of Copper Sulfate	15	drops
10% Solution of Ammonium Carbonate	15	drops
(b) Potassium Ferricyanide	2.4	g.
Water	4.5	oz.

Mix solution (a) and solution (b) and immerse the well-washed print in the mixture till the desired tone is obtained.

Mercury Toning

Bromide papers can be made to yield a range of brown tones, from a rich brown to a pure engraving black, by employing a toning procedure involving a bleach, a toner containing mercuric chloride, and the familiar sodium sulfite bath.

The differences in color are ob-

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usual. The negative is then temporarily cemented, emulsion downward, on a piece of glass which is placed on a light table. The several dye coatings are applied evenly over the lines or areas which are to appear as yellow, blue or green, respectively, on the final point. After drying, the colored negative is contact-printed on a three superimposed emulsion layer photographic paper. After developing, the resulting print shows no unevenness in color line, all lines being smooth and of pure color.

Dye Coating for Color Photography
U. S. Patent 2,433,811
Formula No. 1

Sodium Borophosphate (*Abopon*)	35
Water	65
Pyrazol Orange G	4

No. 2

Sodium Borophosphate (*Abopon*)	15
Water	85
Brilliant Congo G	3

Developer for these formulae:

p-Aminodiethylaniline Hydrochloride	2 g.
Anhydrous Sodium Carbonate	50 g.
Anhydrous Sodium Sulfate	2 g.
Potassium Bromide	⅕ g.
Water	To make 1 l.

"Yellow" Blueprint Solution

Ferric Ammonium Oxalate	100 lb.
Citric Acid	6 lb.
Ammonium Oxalate	12 lb.
Potassium Ferricyanide	14 lb.
Water	To make 10 gal.

"Blue" Blueprint Solution

Citric Acid	4 lb. 5 oz.
Sodium Carbonate Monohydrate	3 lb. 12 oz.
Potassium Ferricyanide	12 lb.
Potassium Ferrocyanide	18 lb.
Borax	8 lb.
Ferric Ammonium Oxalate	100 lb.
Potassium Oxalate	20 lb.
Water	To make a solution of 14° Bé. at 70°F.

Blueprint Eradicator

Oxalic Acid	11 oz.
Potassium Oxalate	12 oz.
Gum Arabic	2 oz.
Water	To make 1 gal.

Brownprint, Negative or Van Dyke Solution

(a) 14.5° Bé. solution of silver nitrate at 70°F.

(b)

Citric Acid	8 lb.
Ferric Sulfate	8 lb.
Tartaric Acid	2 lb. 12 oz.
Ferric Ammonium Oxalate	58 lb.
Ferric Oxalate	45 lb.
Water	To make a solution of 15° Bé. at 70°F.

Immediately before coating on paper, mix equal volumes of (a) and (b).

Brownprint Eradicator

Mercury Bichloride	2 oz.
Gum Arabic	1 oz.
Water	To make 1 qt.

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Physiologic Salt Solution	To make 360.00

The resulting mixture is a viscous liquid in which the pectin and barium sulfate are evenly dispersed and maintained in suspension.

X-Ray Screen Coating
U. S. Patent 2,454,499

	%
Cadmium Sulfide	over 38
Zinc Sulfide	To make 100
Silver	Less than 1 part in 3,000 parts of this mixture

Silk-Printing Screen

Fine silk gauze screen should be washed several times with hot water to clean any dirt or fibers on the gauze and dried.

(a) Gelatin	15
Hot Water	65
(b) Ammonium Bichromate	5
Hot Water	10
Liquid Ammonia	5

These two solutions are mixed in a darkroom and applied to the perfectly dry screen with a brush, holding the screen in a verticle position. The painting is done carefully, without leaving pin holes on the screen due to uneven brushing. This may be verified by examining the screen in the red light in the darkroom.

The screen thus prepared is dried in the dark itself in a cool atmosphere by keeping it horizontal, and when dry it becomes the sensitized screen.

The pattern drawn with black ink is placed on a glass fitted on a frame. The sensitized screen is placed just above the pattern drawing on the glass and pressed on the pattern. Sheets of newspapers are placed in the tray of the screen and it is also filled with granular sand to give a thorough contact between the design paper and the sensitized screen so that light rays do not get scattered in unwanted portions. The whole arrangement is to be made in a darkroom and then carried out to sunlight for photochemical reaction which requires 10 minutes if there is full sunlight. But if the operation is done by keeping a mercury vapor lamp of 300 candle-power just below the glass, one-half hour is required for the exposure.

After the exposure, the entire arrangement is brought back to the darkroom and in red light, the screen is washed in hot water (60°C.) to which a few drops of acetic acid have been added. Wash carefully for 15 minutes without rubbing, when the gelatin complex at places where the light passed gets hardened and remains on the screen while the other portion is washed away.

The gelatin complex is further hardened by applying to the screen a rag wetted with the following hardening solution.

Chrome Alum	5.0
Potassium Bichromate	2.5
Formaldehyde	5.0
Water	To make 100.0

Allow this to react for 5 minutes on the screen and then wash with cold water and blot it first by using cotton cloth and finally dry.

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Carb. Red BNV Concentrated Powder
Solastral Blue B Concentrated Powder
Lake Rubine R
Carb. Scarlet R Powder
Vat Red Violet RHP Concentrated Powder
Carb. Blue RSP Concentrated Powder

Coloring Vinylite Plastics

Vinylite plastics usually are plasticized polymers of vinyl chloride, vinyl acetate or similar derivatives and mixtures of these. The ingredients of these plastics are premixed in a ball mill or by other suitable means, and then the material is transferred to a heated, differential two-roller mill for final compounding. The coloring matter is added along with the other ingredients and is incorporated into the material in the milling operation.

The following dyes may be used:

Oil-Soluble Dyes
Quinoline Yellow Base
Oil Orange 2311
Oil Scarlet 6G
Oil Pink B
Oil Red O
Oil Brown M
Quinizarine Green Base
Alizarine Blue GRL Base
Victoria Blue B Base
Fast Acid Violet GRF Base
Oil Black 24087

Plasto Dyes
Plasto Red MS
Plasto Pink MBS
Plasto Scarlet MC
Plasto Orange RS
Plasto Orange M
Plasto Yellow GR
Plasto Blue RDA
Plasto Violet MB
Plasto Violet MR
Plasto Red Brown NR
Plasto Brown 2RS

Iosol Dyes
Iosol Red
Iosol Orange
Iosol Yellow
Iosol Green
Iosol Blue 6G
Iosol Blue
Iosol Black

Dyeing Polyvinyl Chloride Plastics

Suitable water-soluble colors are certain azo and triphenylmethane dyes, the so-called basic dyes, which impart very pronounced shades to polyvinyl chloride, including:

Chrysoidine J
Phenylene Brown S
Fuchsine A
Rhodamine 6J
Rhodamine B
Crystal Violet
Paris Violet 2B
Victoria Blue B
Meldola Blue M
Malachite Green J 3 ES
Bright Green

For 1 l. dye use 1 gr. basic color mixed with 1 g. acetic acid, to which boiling water is added to make up the required amount and 5 g. saponine. The acetic acid facilitates the dissolution of the dyes, and the saponine is a wetting agent which does not precipitate basic dyes and is indispensable for obtaining an even color. In such a bath, maintained at 90 to 100°C., dyeing is effected in 30 seconds.

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High-Grade Hospital Protective Sheeting
(Maroon Color)

Smoked Sheets	45 lb.	8 oz.
Zinc Oxide	22 lb.	
Whiting	30 lb.	
Sulfur		15 oz.
Mercaptobenzothiazole		8 oz.
Diphenylguanidine		1½ oz.
Red Iron Oxide	1 lb.	
Chrome Yellow		8 oz.
Lampblack		4 oz.

Mix on a two-roll mill. Churn in 15 to 20 gal. naphtha to the desired viscosity. Spread the fabric to the desired thickness. Dust with powdered mica and brush well. Vulcanize in dry-heat oven for 1 hour at 260°F.

Rubberized Fabric
Formula No. 1

Smoked Sheets	100.00
Stearic Acid	2.00
Zinc Oxide	50.00
Pine Tar	2.80
Mercaptobenzothiazole	0.75
Neozone D	1.50
Sulfur	2.75

No. 2

Neoprene Type GN	100.0
Neozone D	2.0
Extra-Light Calcined Magnesia	4.0
Channel Black	25.0
Stearic Acid	1.0
Palm Oil	1.0
Zinc Oxide	5.0
Sodium Acetate	1.0

No. 3

GR-S	100.0
Channel Black	32.0
Santocure	1.3
Stearic Acid	2.0
Neozone A	1.0
Sulfur	1.5
Circo Light Process Oil	3.0
Zinc Oxide	5.0

These compositions may be applied to No. 10 duck by calendering. The rubber and the neoprene should be cured for 30 minutes at 40 lb. steam pressure and the *GR-S* should be cured 60 minutes at 40 lb. steam pressure.

Compound for Resoling Shoes

Smoked Sheets	40 oz.
Powdered Rosin	7 oz.
Liquid Shellac	9 oz.
Powdered Leather	18 oz.
Carbon Disulfide	6 lb.

Cut the rubber in small pieces and dissolve in carbon dissulfide. When dissolved, add the rosin and then the shellac. Mix well. If too thick, thin with wood alcohol. Then mix in the powdered leather till a well-blended paste is obtained.

Transparent Nipple Stock

Pale Crepe	100.00
Fast-Cure Zinc Oxide	0.85
Sulfur	1.75
Ureka C	0.40
Thiurad	0.25
Stearic Acid	0.50

Cure for 10 minutes at 287°F.

Rubber Eraser

Pale Crepe	35
White Rubber Substitute	60
Lime	6
Heavy Magnesia	4
Pumice	50
El-Sixty	2
Sulfur	2

Load the stock with pumice. The amount that can be used will depend somewhat on the particle size

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Cutting Block

Smoked Sheets	13
Deresinated Balata	21
Isolac	15
50 to 50 Glue and Smoked Sheets Master Batch	16
Silene EF	70
Calcene	50
Potato Starch	16
Glycerin	8
Cumar MH	5

Durable Imitation Leather

Hycar OR 15	315.0
Marbon S	45.0
EPC Witco	300.0
Philblack O	150.0
Pine Tar	25.0
Picco 25	35.0
Stearic Acid	5.0
Zinc Oxide No. 15 *Kadox*	17.5
Sulfur	7.5
Agerite P	5.0
Triacetin	75.0
Methyl Tuads	7.5

Cure 7 minutes at 90 lb. pressure per $\frac{1}{16}$ in. thickness. It simulates the feel of leather, but is far superior in wear. It is suitable for stitching, such as wallets and purses.

Synthetic-Rubber Printer's Roll

Paracril 26NS60	200
2L Factice	50
91 Factice	50
P-1 Castor Oil	100
Gastex	40
Aminox	3
Thermoflex A	3
Zinc Oxide	20
Stearic Acid	4
Sulfur	6
Altax	4

Cure per 1 in. thickness 2 hours at 40 lb. steam pressure. It has good abrasion, tear, and solvent resistance.

Lithographer's Neoprene Rubber Roll Stock

GNA Neoprene	8 lb.	
Neozone A		2 oz.
XLC Magnesia		6 oz.
Zinc Oxide		6 oz.
Indonex 633½	1 lb.	12 oz.
Sulfur		1 oz.
Smoked Sheets	2 lb.	
Altax		2 oz.
Calcium Silicate	8 lb.	
Rayox		8 oz.
Stearic Acid		4 oz.
Whitetex Clay	13 lb.	8 oz.
Trycresyl Phosphate	1 lb.	
P-25 Cumar		12 oz.

Cure per 1 in. thickness 2 hours at 40 lb. steam pressure.

Insect-Repellent Rubber Strip or Pad

Reclaim Rubber	100.00
Cold Synthetic Rubber	65.00
Reogen	2.00
Stearic Acid	1.00
Mineral Rubber	8.00
Agerite Resin	1.00
Zinc Oxide	2.00
Sulfur	2.75
Altax	1.00
Santocure	0.25
Insecticide *	68.00

Press-cure 15 minutes at 307°F.

Sponge Rubber for Molded Parts

Smoked Sheets	100.0

* Insecticide

Synklor 48-E (48% Technical *Chlordane*)	16
Dixie Clay	52

Sprinkle *Synklor 48-E* into clay and tumble until mixed.

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the reaction. This can be added as such or, if it is desired to add all ingredients in the form of a single pill, it can be added in a chemical that contains water of crystallization. Epsom salts give off sufficient water at 302°F. and can be used in balls that are cured as a single piece. Alum gives off water at 148°F. and is more suitable when the ball has already been cured in two halves and only a brief additional cure is needed to vulcanize the cement. Pills containing equal parts of sodium nitrite, ammonium chloride, and either Epsom salts or alum, together with a small amount of zinc stearate can be formed in automatic pill-making machines. These pills simplify the duties of the press man curing the balls.

Rubber-Mold Liner Treatment

Stearic Acid	50 lb.
Oleic Acid	60 lb.
Zinc Oxide	15 lb.
Aqua Ammonia	45 lb.
Water	40 gal.

Heat-churn with 5 lb. steam. When hot, melt the stearic acid, add 5 gal. water and 15 lb. ammonia. Start agitation, add the zinc oxide, and churn until smooth. Add the oleic acid slowly until it is mixed uniformly into the batch. Add the remaining water and ammonia together. This yields 60 gal. smooth paste ready for spreading the liner.

When rubber compounds are calendered into cloth liners they will not stick if the liner has been coated with this zinc stearate dispersion.

Rubber-Slab Dip

Formula No. 1

Bentonite	8.5 lb.
Soapstone	150.0 lb.
Sun Emulsifying Oil	8.5 lb.
Aerosol OT	0.5 lb.
Water	93.0 gal.

No. 2

(To prevent sticking)

Diglycol Stearate	1.5–2.0
Water	98.0

Antiblocking Agent for Sponge-Rubber Curing

Sponge rubber, which is extremely tacky before curing, is generally cured by placing the uncured sheets on cotton duck lines which act as mold medium. The cotton duck lines are usually paraffin treated to make them waterproof and to aid in antiblocking. As an additional antiblocking aid, powdered mica, clay, etc. is dusted on the duck or the rubber. These lines give very poor service since the paraffin melts out of the cloth during curing. Dusting gives the usual disadvantages of the dust problem, uneven coverage and undependable antiblocking.

Cotton duck lines can be impregnated with an *Acrawax C* dispersion to give a semipermanent mold medium which may be used over and over again. The antiblocking properties are excellent and no dusting is required. The cotton duck is run through undiluted *Acrawax C* dispersion and then through a squeeze roll. The moisture is driven off and the wax set in the cloth by passing through heated calender rolls. The pick up of the wax by the cloth is about 5 to 6 oz. per sq. yd.

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Carbon Black	0.5
Microcrystalline Wax	10.0
Iron Oxide	1.0

Splicing Tape

Formula No. 1

Smoked Sheet	100
Vistanex B 120	200
Zinc Oxide	45
Whiting	400
Ti-Cal	110
Lampblack	5
Stearic Acid	5
Clay	45
Sulfur	4

No. 2

Smoked Sheet	100
Vistanex B 120	180
Zinc Oxide	380
Clay	55
SRF Black	100
Paraffin Oil	40
Litharge	85
Sulfur	2

No. 3

Vistanex B 140	100.0
Polystyrene Resin	20.0
Celite 270	100.0
Paraffin Oil	12.5
Zinc Stearate	2.0
Inhibitor	0.2

Reclaiming Vulcanized Rubber

Swiss Patent 215,952

Scrap rubber is macerated and heated above 150°C. in an autoclave with 20% thiophenol. It is then cooled and washed with water or glycerin.

Geon Latex Coating

Geon Latex (56% Solids)	200
Ammonia (28%)	2
Dibutyl Sebacate (65% Emulsion) *	60
Water	37.5

* Plasticizer Emulsion

Lead Carbonate (70% Dispersion)	2
Chrome Yellow (70% Dispersion)	40
Methyl Cellulose (5% Solution)	8

The plasticizer, containing the dissolved oleic acid, is poured slowly into the ammonia-morpholine solution while stirring. The resulting coarse emulsion is passed through a homogenizer or colloid mill until the desired particle size is obtained. It is desirable to obtain as fine an emulsion as possible with no air bubbles or foam present.

Colored Geon Latex

(Pigment paste)

Medium Chrome Yellow	200
Darvan No. 2	1
Ammonia (28%)	1
Water	80

Colored latex films are frequently desired and may be prepared in a number of ways. Water dispersible pigments made into a thin paste can be used but preference is given to dispersions made by adding dry pigment to a solution of a surface active agent and milling in a ball or pebble mill until uniformly dispersed.

Hycar-Latex Dipping Compounds

Formula No. 1

(Dry basis)

Hycar Latex 1552 (OR-25 Type)	100.0
Agerite Stalite	3.0
Ammonia (28%)	0.6
Morpholine	0.4
Dibutoxyethylphthalate or Dibutyl Sebacate	60.0
Oleic Acid	1.5

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ous needs. The small size in the form of a solid cylinder of 1⅝ in. diameter and 6 in. long may be used in portable breathing apparatus such as those used in mines and high-flying aircraft. A similar size is suitable as an oxygen source in hospital breathers. A larger candle, weighing 12 lb. and measuring 3¾ in. in diameter and 14 in. in length may be used in submarines and will supply enough oxygen to refresh the air for 65 men for 1 hour.

Preventing Powders from Caking

British Patent 606,431

Paraffin Oil	9
Stearic Acid	1

Heat at 50 to 60°C. and mix or tumble to get a uniform coating.

Moisture (Humidity) Indicator

Formula No. 1

Cobaltous Chloride	30
Sodium Chloride	15
Gum Arabic	7½
Calcium Chloride	4½
Water	400

This moisture indicator may be applied to cloth. In dry air, the color is blue, turning to red and then to pink as the humidity increases.

No. 2

The test specimen is placed in a suitable vessel with a suitable mixture of color-changing salts, and the change due to moisture is measured colorimetrically. A mixture of sodium chloride with 1% ferric sulfate and 1% potassium sulfocyanide changes from pale rose to deep red between 8 and 12% moisture. A mixture of sodium chloride with 5% iron-ammonium sulfate and 5% potassium ferrocyanide changes from pale blue to blue-black between 12 and 16% moisture.

Preventing Wake Formation

(Naval)

U. S. Patent 2,414,632

Solox (Completely Denatured Alcohol)	2 qt.
Oil-Soluble Black (Dye)	¼ oz.
or Diphenylamine	4 oz.

This solution is finely sprayed just beyond the stern of the boat and about 1 ft. above the water.

Waterproofing for Wood

Formula No. 1

Clorafin 42	50
Xylene	50

No. 2

Clorafin 70	50
Xylene	50

No. 3

Raw Linseed Oil	50
Xylene	50

Wind-Shield Antifogging Agent

Formula No. 1

Duponol ME, Dry	700
Tannic Acid	90
Glycerol	160
Pontamine Sky Blue 6BX Conc.	9
Water	To make 8,000

Use this mixture to ensure that the moisutre which condenses on the cold glass is uniformly spread over the surface as a clear film. The dye gives a distinctive color for quick identification and to prevent use by mistake. Each application will last for several hours.

No. 2

Aerosol OT	5
Ethyl Alcohol	15

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Product	No.
Lead Arsenate	483
Lead Borate	719
Lead Carbonate, Basic	982
Lead Fluoborate	401
Lead Oleate	979
Lead Oxides	401
Lead Stearate	735
Lead Titanate	1097
Lecithin	505
Lecivit	627
Lemon Chrome	675
Lemon Juice, Concentrated	763
Lemon Oil	591
Lemonal	1139
Lemonone	509
Leonil	45
Le Page's Cement	929
Leptyne	859
Lerbinia	439
Lethane	915
Leucosol	393
Leucotrope W	1197
Leukanol	915
Leukonin	545
Levelene	29
Lewisol	667
Licorice	687
Licorice Root	687
Lignin	702
Lime	843
Lime, Hydrated	605
Limestone	955
Linalöol	503
Linalyl Acetate	503
Linalyl Formate	503
Lindol	235
Lingasan	557
Linoleic Acid	509
Linseed	See Flaxseed
Linseed Oil	161
Linseed Oil, Sulfurized	1021
Liquid Paraffin	See Mineral Oil
Literite	675
Litex	1079
Litharge	401
Lithium Carbonate	715
Lithium Chloride	715
Lithium Salts	715
Lithoform	37
Lithopone	649
Locust Bean Powder	391
Lognite	1205
Logwood Extract	47
Lopor 45	432
Lorinol	163
Lorol	393
Lubrisol	1007
Lucidol	679
Lucite	393
Lufax	915
Lumarith	235
Luminol	407
Luxene	111
Luxol	393
Lycopodium	721
Lynsol	557
Lysol	661

M

Mabelite	45
Mace Oil	681
Mafos	713
Magnesia	223
Magnesia, Light Calcined	493
Magnesite	493
Magnesium	379
Magnesium Ammonium Phosphate	749
Magnesium Carbonate	731
Magnesium Chloride	1193
Magnesium Hydroxide	705
Magnesium Peroxide	187
Magnesium Powder	145
Magnesium Silicate	1181
Magnesium Silicofluoride	345
Magnesium Stearate	1193
Mahogany Soaps	1007
Maize Starch	See Corn Starch
Makalot	285
Malachite Green	881
Maleic Acid	769
Manganar	393
Manganese	13
Manganese Dioxide	381
Manganese Resinate	979
Manila Gum	603
Manjak	1209
Mannitan Monostearate	103
Mannitol	103
Manol	983
Manox	701
Mapico	159
Mapromin	905
Mapromol	905
Marble Dust	533
Marcol	1023
Marlite	873
Marseilles Soap	See Castile Soap
Mazola	327
Melamac	45
Mellittis	503
Menhaden Oil	109
Menthol	585
Menthone	503
Menthyl Salicylate	523
Mercapto-Acetic Acid	711
Mercaptobenzothiozole	779
Mercol ST	1088
Mercurous Nitrate	1201
Mercury	585
Mercury Compounds	1201
Mercury Oxycyanide	149a
Merpentine	393
Merpol	393
Mersol	749

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No.	*Name*	*Address*
1167.	The Warner Chem. Co.	New York, N. Y.
1169.	Warwick Chem. Co.	West Warwick, R. I.
1170.	Washine National Sands, Inc.	Long Island City, N. Y.
1171.	Welch, Holme & Clark Co.	New York, N. Y.
1173.	Welsbach & Co.	Gloucester, N. J.
1175.	Werk, M. Co.	Cincinnati, Ohio
1177.	Western Charcoal Co.	Chicago, Ill.
1179.	Westinghouse Elec. & Mfg. Co.	E. Pittsburgh, Pa.
1181.	Whittaker, Clark & Daniels	New York, N. Y.
1183.	Wiffen & Co., Sons, Ltd.	London, England
1185.	Wilckes-Martin-Wilckes Co.	New York, N. Y.
1187.	Will & Baumer Candle Co.	New York, N. Y.
1189.	Williams, C. K. & Co.	Easton, Pa.
1191.	Wilson Laboratories	Chicago, Ill.
1192.	Winthrop Chemical Corp.	New York, N. Y.
1193.	Witco Chem. Co.	New York, N. Y.
1195.	Woburn Chem. Corp.	Harrison, N. J.
1197.	Wolf, Jacques & Co.	Passaic, N. J.
1199.	Wood Flour, Inc.	Manchester, N. H.
1201.	Wood Ridge Mfg. Co.	Wood Ridge, N. J.
1203.	Wyodak Chem. Co.	Cleveland, Ohio
1205.	Young, J. S. & Co.	Hanover, Pa.
1206.	Ziegler, G. S. & Co.	New York, N. Y.
1207.	Zinsser, Wm. & Co.	New York, N. Y.
1209.	Zophar Mills, Inc.	Brooklyn, N. Y.

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Lost Wax Mold Lubricant 282
Lotion. See also Face Lotion, Hand Lotion
Acid Skin 54
Acne 107
After Shaving 123
Analgesic 101
Baby Skin 54
Insect-Bite 55
Lanolin 54
Preshave 123
Rubefacient 112
Sulfur 55
Sunburn 66
Low Freezing Oil 567
Lubricant (See also Grease) 11, 280
Adhesive Cutting 281
Block-Grease 282
Casting-Die 280
Cellulose Acetate 284
Ceramic Molding 282
Chassis 283
Chlorine Valve 283
Cotton Thread 284
Drawing 280
Drill 282
Dry Metal 280
Fine Instrument 283
Gum 11
Hydrocarbon Lubricant 283
Latex-Mold 500
Lost Wax Mold 282
Metal Powder 280
Mold 282
Nongumming 283
Nylon Thread 284
Pipe Thread 283
Pressure-Die 280
Rubber Mold 282, 494
Shoe Last 284
Textile Fiber 192
Typewriter 283
Watch 283
Wire-Drawing 280
Wool 284
Luminescent Coatings 428
Luminous Pigment 562
Lute. (See also Cement) 45

M

Magnesium, Corrosion-Resistant 289
Decorative Finish for 302
Oxychloride Coating 132
Protective Coating for 301
Magnet, Permanent 289
Make-Up, Cake 71
Liquid Face 72
Malted, Frosted 224
Milk Powder 8
Marshmallow, Bakers' 211
Masonry Coating, Decorative 134
Joint Filler 43
Mastic, Aluminum 43
Vermiculite 43
Mayonnaise 221
Measuring 4
Meat, Coating Frozen 227
Pickling Brine 227
Mercerizing Wetting Agent 186, 545
Mercury Ointment 96
Metal, Cleaning 305
Coating, Protective 424, 425
Coating, Removing 312
Patching 366
Polish 9
Tubing, Bending 367
Metallizing Baby Shoes 349
Methods 3
Metric Weights and Measures 585
Mica Substitute 167
Micanite 163
Microscope Slide Mounting Fluid 572
Migraine Tablet 105
Mildewproofing (See also Fundicide) 268
Agents 423
Rope 558
Thread 558
Mineral Specimen Labeling 22
Mirror, One-Way 182
"X-Ray" 182
Mischmetal 289
Mixing 4
Model, Plaster 130
Modinal 185
Moisture Indicator 566
Testing 202
Moistureproofing, Hot-Melt 472
Mold Casting, Plaster 129
Flexible 499
Lubricant. See Lubricant.
Molding Compound 465
Compound, Low-Pressure 468
Material 11
Powder, Lignin 467
Mold-Liner, Rubber 494
Moldproofing. See also Fungicide and Mildewproofing.
Book-Binding 558
Mortar, Increasing Durability of 134
Plastic 134
Mosquito Repellent 7
Moth Fumigation 268

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Paint—Continued
Structural-Steel 385
Stucco 372, 420
Swimming-Pool 420
Tank 390
Tinted 372
Tire 425
Traffic 394
Turpentine Cup 430
Varnish Remover 416, 417
Vehicle, Aluminum 388
Washable Wallpaper 427
Water 390
Water-Resistant 420
Water-Tank 419
White House 370
Paper Adhesive, Waterproof 18
Asbestos 434
Cigarette 434
Coating 431
Coating, Fluorescent 432
Coating, Greaseproof 433
Coating, Hot-Melt 433
Coating, Nonfoaming 432
Coating, Overprint 432
Crepe 433
Facsimile-Recording 434
Finish 431
Fireproofing 14
Fungusproofing 432
Glassine 13
Oilproofing 14, 432
Secret Document 434
Sizing 431, 434
Towel Improver 433
Transparentizing 433
Waterproofing 13
Parathion Insecticide 254, 255, 256
Parting Compound 129
Paste. See also Adhesive.
Adhesive Starch 16
Bookbinding 19
Dextrin 16
Flour 19
Glass to Paper 21
Label 21
Library 16
Paper-Hangers' 11
Paper to Glass 21
Photographic 16
Tropical Adhesive 16
Patching Compound, Sidewalk 424
Patented Chemicals. See Trade-Mark Chemicals.
Patina on Copper 319
Peaches, Nondiscoloring Canned 226
Pectin Stock 214
Penetrating Oil 11, 284
Penicillin Base, Water-Soluble 114
Suspension 109
Peptonizing Powder 109
Percentage in Formulae 2
Perfume 78
Industrial Masking 78
Soap 530
Solidified 58
Solubilizing 78
Stick 58, 73
Toilet-Soap 532
pH Values 586
Phenobarbital Tablet 106
Phenothiazine, Dispersible 196
Phonograph Record, Cellulose Ester 471
Record, Ethyl Cellulose 471
Record, Polystyrene 471
Record, Vinyl 470
Record, Vinylidene Chloride 471
Phosphor 562
Phosphorescent Paint 427
Photographic Bulb, Coloring 181
Coating, Color 437
Developer (See also Developer) 15
Film Cement 24
Film, Hypersensitizing 435
Fixing, Alkaline 437
Paste 16
Print, Noncurling 437
Reduction 437
Solutions 15
Toning. See Toning.
Pickle, Dichromate Metal 309
Ferric Sulfate Metal 309
Pickling, Acid Metal 308
Brass 336
Meat 227
Steel 365
Watermelon Rind 226
Pie Crust 215
Dough, Fried 215
Filling 214
Filling, Vinegar 215
Pigment Dispersion 197
Pill Coating 103
Plant Food 199
Plaster, Bandage 119
Board 137
of Paris 133
Set-Stabilized 133
Wall-Patching 11
Plastic. See also Molding Material.
Balloons 473
Blackboard 478
Bubbles 473
Cellulose 466

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Primer—Continued
Galvanized Iron 384
Promoting Adhesion of 384
Rust Inhibitive Metal 374
Sealer, Interior 396
Thermite 463
Zinc Chromate 385
Print, Discharge 554
Printers' Roller 492
Printing, Lithographic 237
Nylon 552
Resin Textile 555
Roller 229
Textile 555
Propellent, Flashless 463
Prophylactic, Venereal 96
Pumice Stone, Artificial 179
Punch, Frozen 207
Putty 12
Aluminum 42
Caulking 42
Floor 42
Nonchalking 42
Nonhardening 42
Oil-Resistant 43
Primeless 43
Rubber 43
Steel-Sash 42
Water-Resistant 43
Woodflour 467
Pyrotechnic 455
Military 459
Whistle 462

R

Rabbit Deterrent 201
Skin Insecticide 268
Radiation Absorption Coating, High-Frequency 165
Radiographic Cream 110
Rat Flea Control, Typhus 267
Poison 270
Rawhide Coating, Imitation 428
Reclaiming Vulcanized Rubber 496
Record, Plastic. See Phonograph Record.
References 593
Refractory 145
Cementitious 145
Constant-Size 147
High-Temperature 147
Relief Map Composition 568
Remover. See also Solvent.
Carbon 518
Remover—Continued
Carbon Paper Stain 523
Chimney-Soot 536
Concrete Stain 511
Cosmetic 49
Cuticle 91
Decalcomania 417
Embedded Metal 368
Flux 301
Garment Shine 536
Grease 514
Grease-Spot 535
Ink 523
Ink-Stain 534
Lacquer 312, 417, 531
Lipstick 71
Metal Coating 312
Metal Scale 324
Milkstone 510
Nail Polish 90
Nicotine Stain 91
Paint 12, 312
Paint and Tar 517
Paint and Varnish 416, 417
Rust 365, 519, 521
Ship-Bottom Oil 517
Silicone Lubricant 517
Sludge 517
Spot 13
Stain 535
Stick Ink 523
Tar and Asphalt 516
Wax 517
Reodorant, Industrial 78
Resistor, Cement-Coated 563
Enamel-Coated 564
Retting, Bast-Fiber 539
Ringworm Ointment, Cattle 203
Road, Improved Gravel 134
Latex-Cement 501
Marking, Thermoplastic 424
Rubber-Asphalt 501
Rock Specimens, Labeling 22
Rodenticide, Antu 270
Roman Candle 455
Rosin, Stabilizing 434
Rot Control, Gladioli 269
Rotax Dispersion 196
Rotenone Insecticide 265
Rouge, Cream 73
Liquid Face 73
Paste Face 72
Rubber, Antitack for 472
Balls, Pressure in 493
Bands 491
Butyl Inner-Tube 491
Cold 491

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